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(54) Rigid vehicle for bulk loads

(57) The vehicle comprises a traction unit (1), front wheels (2) and a front chassis (3) which is connected by a step (4) to a rear chassis (5). A deck is supported on the rear chassis (5) which itself is supported by rear wheels (6), (7) which are smaller in diameter than the front wheels (2). The rear wheels (6), (7) are supported on axles (8), (9) which are attached to the rear chassis (5) by means of self-levelling suspension units. This arrangement provides a long, low load deck and increased load space.

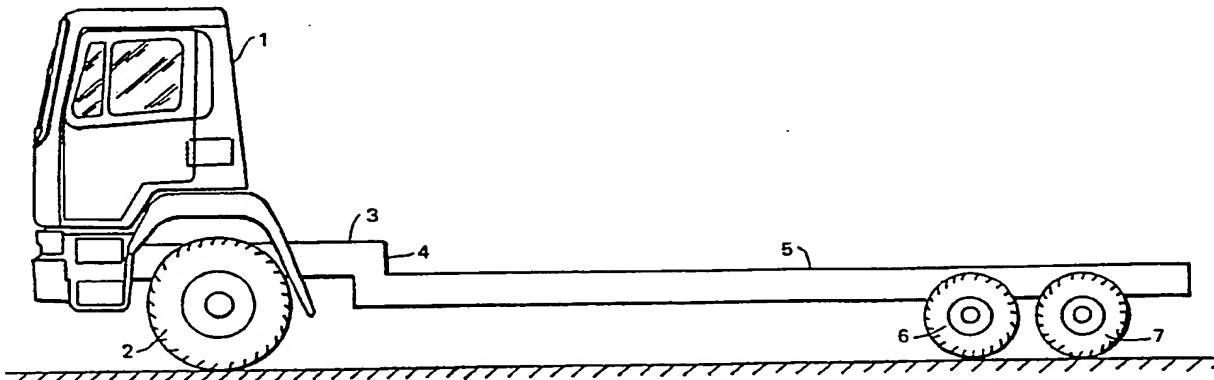
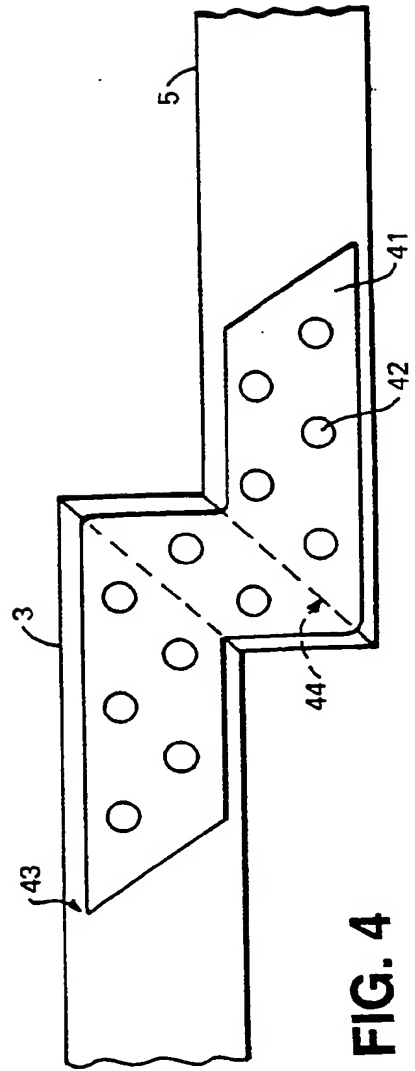
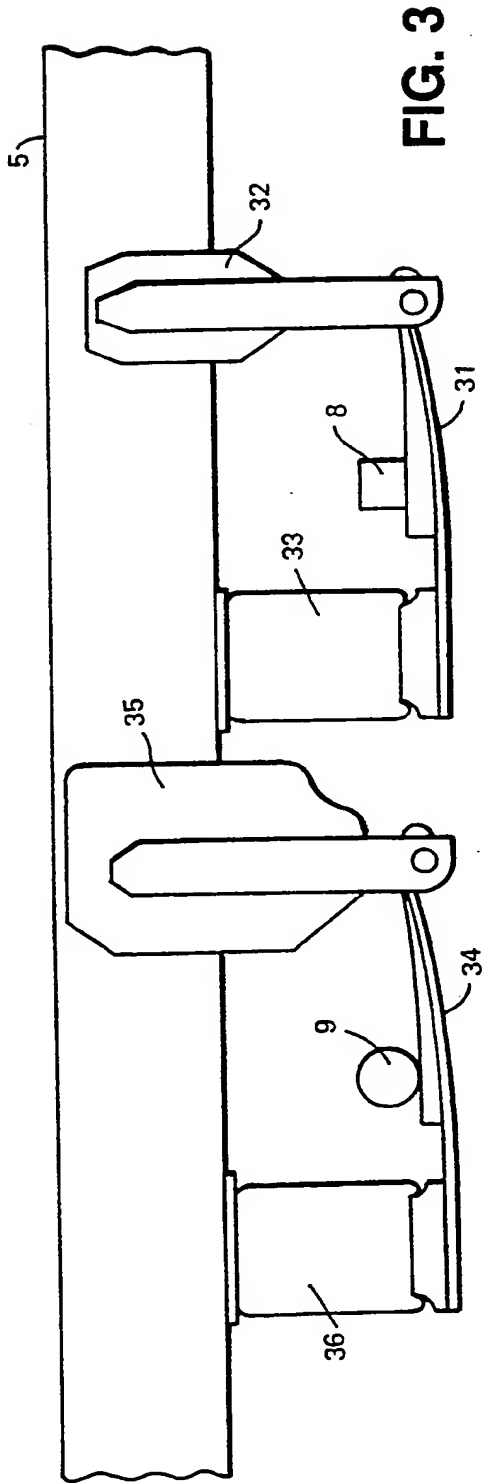


FIG. 1

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the two have to be coupled together prior to use. Low-loaders are of especial value in the transport of very heavy or very voluminous loads. However they have the disadvantage in that they are expensive both to manufacture and to  
5 operate. Furthermore in a number of localities low-loaders attract higher licensing fees compared with those levied on non-articulated vehicles.

In order to overcome the limitations of these vehicles rigid  
10 vehicles have been developed with low slung decks. However they have not been satisfactory. In some of the vehicles smaller wheels are employed. However in such cases the length of the deck is too short to permit the carrying of large quantities of goods. In vehicles which have the desired  
15 length of deck the latter is not low slung continuously along its length. This is because hitherto wheels of large diameter have been required to carry the load and the part of the deck located towards its rear end is required to rise up and pass over these wheels. The low slung part of the deck  
20 then forms a well between the traction unit and the rear wheels. Consequently loading of the deck, particularly when it is covered, has to be carried out from the side of the vehicle.

25 The present invention is directed to a rigid vehicle having a long low slung deck, which avoids the disadvantages of the existing vehicles. In addition it provides a means whereby traction units originating from different manufacturers can be provided with a long low deck rearwardly of the drivers  
30 cab. The present invention is directed further to the production of a rigid vehicle in which the maximum height of a load falls within limits which comply with laws or other official regulations.

35 Accordingly this invention provides a rigid vehicle

from the step connection 4 to the rear of the vehicle and covers two axle assemblies each consisting of two pairs of two wheels 6 and 7 rotating about drive axle 8 and rear axle 9. Drive from the engine is transmitted by a multi sectional 5 prop shaft 10 to drive axle 8.

The diameter of the rear wheels 6 and 7 are preferably as small as practicable taking into consideration the anticipated weight of the load to be carried and the type of 10 drive axle utilised. The diameter of the wheels can be in the range of 76 to 77 cms whereas the diameter of the front wheels carrying the traction unit can generally be within the range of 100 to 105cms. Wheels of the latter size are generally used for conventional rigid vehicles in this 15 category and are therefore considerably larger than those in the present vehicle for carrying the deck. Consequently the use of wheels of relatively small diameter assists materially in enabling a low deck to be employed. In the present vehicle the height of the chassis above the road surface can be as 20 low as 780cms as compared with conventional height of 1054cms.

Another factor affecting the height of the deck is the size of gap between the top of the wheel and the underside of the 25 deck. During movement of the vehicle this gap is liable to vary especially when the vehicle moves over irregularities on the surface of a road. In addition the gap is liable to be reduced to varying extents according to the weight of the load which is being carried. Gaps of the order of 25-30 cms 30 are generally provided in conventional vehicles. However in accordance with the present invention a substantially smaller gap can be employed which is maintained at a predetermined height of for example 10 cms or even less by means of a pneumatic automatic self levelling suspension a part of which 35 is illustrated in Fig 3. In this figure axle drive 8 is

of fixing the unit to the deck may require modification. Whilst the long decks can be connected to traction units as described above, they can also be connected to other donor units which can comprise complete vehicles. In such 5 instances some parts may need to be removed prior to the addition of a low deck.

- 5 A rigid vehicle as claimed in claim 4 in which the pair of air bags on each on each axle can be inflated or deflated independantly of each other.
- 6 A rigid vehicle as claimed in any one of the preceding claims in which teh gap can be controlled from within the traction unit.
- 7 A rigid vehicle as claimed in any one of the preceding claims in which the front and rear chassis are connected together at their sides by reinforcement plates welded to the side rails of the front and rear chassis.
- 8 A rigid vehicle as claimed in claim 7 which the side rails of the front and rear chassis have mitred joints welded to the reinforcement plates.
- 9 A rigid vehicle constructed and arranged for use and operation substantially as herein described, and with reference to the accompanying drawings.

Category	Identity of document and relevant passages	Relevant to claim(s)

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